How to add AIOP camera to Hikcentral Professional

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1. Description

Hard Hat detection algorithm, is the use of advanced deep learning technology, based on high-performance hardware platform, detects of the head shoulder in the video, determine whether there is a hard hat, then output the alarm of the head that whether to wear a hard hat.

Hard hat color support: red, white, blue, yellow, orange five colors.

Note: Orange and yellow is closer, vulnerable to light, color difference, stains and other factors, orange is recommended only as a functional item.

2. Configure the parameter at the web page of camera

2.1 Switch VCA Resource

Enter [VCA]-[VCA Resource], switch VAC Resource to AI Open Platform, click Save.

HIKVISION®	Live View Configuration VCA	🛧 Download Plug-in	👤 admin	Help E+ Logout
VCA Resource Image: Constant of the second	Image: Series of the series			

Note: For H8 platform iDS 7 camera, Hard Hat detection algorithm is build-in AIOP mode, so we need to change VCA resource to AIOP mode.

2.2 Hard Hat Detection algorithm Configuration

Step 1: Enter VCA-> Hard Open Platform-> AI Open Platform. Drag Hard Hat Detection model in Model

Library to Engine to bind them.

HIKVISION®	Live View Cor	nfiguration VCA		
CA Resource	Chip Type H8	SDK Version FW12	0 Algorithm Ver AI_V3.7.1bui	Id20220806 Max. Number 1/4
Hard Hat Detection Al Open Platform	Model Library	+ 🛍 🛈	Engine	Configuration Information
	g		(Not configured)	



Step 2: Click Hard Hat Detection model in Engine and click Task to enable the function.

HIKVISION®	Live View Configuration VCA				뵭 Download Plug-in	上 admin 🚯 Help 🕞 Logout
VCA Resource	Chip Type H8 SDK Version FW1:	20 Algorithm Ver Al_V3.7.1build20220806	Max. Number 1/4			<i>⊜</i> Refresh
Al Open Platform	Model Library + 💼 🛈	Engine	HardHatDetection Engine01			Task
	HardHatDete	Not configured	Basic Configuration Running Status Task Configuration Task Type Arming Settings Overlay Target Frame Rule Overlay	Not configured Live Video Analysis Configuration Enable Enable		
			+ Linked Channel			Added Channel0/1
			No.	Camera Name Channel No.	Enabled Rule(s)	Settings
			별 Save			

Step 3: Select Task Type. There are two type of task that you can chose:

- 1) Live Video Analysis: The device analyzes the live video to realize target detection, tracking and result uploading.
- 2) Scheduled Capture Analysis: The device captures based on the set auto-switch interval to analyze the captured picture and upload results.

HIKVISION®	Live View Configuration	VCA				🍰 Download Plug-in	👤 admin 🚯 Help 🕞 Logout
VCA Resource	Chip Type H8 SDK V	ersion FW120	Algorithm Ver Al_V3.7.1build20220806	Max. Number 1/4			\gtrsim Refresh
Al Open Platform	Model Library	+ 前 ①	Engine	HardHatDetection Engine01			Task
	HardHatDete		Net configured HardHatDetection	Basic Configuration Running Status Task Configuration Task Type Arming Settings Overlay Target Frame Rule Overlay Channel Settings thicked Channel No.	Not configured	Enabled Rule(s)	Added Channel0/1 Settings

Step 4: Set Arming Schedule and Linkage Method.

The arming schedule can be set according to the actual needs of the site, default is 24/7 arming. Next, check Notify Center, audible warning and IO alarm output A->1 or A->2 in linkage mode, accord to actual needs and wiring.



Step 5: Enable **Overlay Target Frame** and **Rule Overlay** according to your needs.

HIKVISION®	Live View Configuration VCA				🗍 Download Plug	9-in 👤 admin 🚯 Help 🕞 Logout
VCA Resource	Chip Type H8 SDK Version FW12	20 Algorithm Ver Al_V3.7.1build20220806	Max. Number 1/4			\gtrsim Refresh
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Overlay Target Frame: Captured pictures will overlay the head shoulder frame of target. As picture shown below.



2) Rule Overlay: Captured pictures will overlay rule information. As picture shown below.



Step 6: Link one channel.

1) Click Link Channel to select a channel.



				Channel No.	Enabled Rule(s)
			OK Cancel		

2) Click the icon in the picture shown below to set rules.

VCA Resource General VCA Settings	Chip Type H8	SDK Version FW12	0 Algorithm Ver AI_V3.7.1build2	20220806 Max. Number 1/4				\mathcal{C} Refresh
Al Open Platform	Model Library	+ 🛍 🛈	Engine	HardHatDetection Engine01				Task 🚺
	HardHatDete		Kot configured HardHatDetection	Basic Configuration Running Status Task Configuration Task Type Arming Settings Overlay Target Frame Rule Overlay Channel Settings Linked Channel No. 1	Not configur Live Video / Configural Enable Enable	red Analysis ion Channel No. 1	Enabled Rule(s) /	Added Channei1/1

Step 7: Configure the rule of the channel

Click Add Rule. Enable one rule, edit the rule name. Select the Rule Type to Region Target Exception

Status Detection.

VISION®	Live View Configura	tion VCA				
VCA Resource	B > Current Channel:	Camera 01 Channel No.: 1				
General VCA Settings	Rules					
Hard Hat Detection	+ Add Rule			Added Sin	gle Rule1/16	
Al Open Platform	Enable No.	Rule Name	Rule Type	Operation		
	2 1	rule 1	Region Target Exception Status Detecti Region Target Exception Status Detectio Line Crossing Target Detection Combined Rule Full Analysis Rule Line Crossing Target Counting Region Target Number Counting	on V X 信 n		
	× 03-03-2022	a Byl 20 a table yw	Object Property	headshoulder v whether unwear v		
	Image: Constraint of the second secon		Ouentity Threshold Duration (s) Alarm Interval(s) Sensitivity Max. Alarm Times Algorithm Validity	helmetc red ∨ Less Th ∨ 1 0 1 0 1 0 1 0 1 0 900 0 0 0 0 0 0 0 0		
VCA Resource General VCA Settings Hard Hat Detection	Live View Cor B > Current Cha Rules + Add Rule	nfiguration VCA annel: Camera 01 Channel	No.: 1		Added Single Rule1/16	
Hard Hat Detection	1 / 100 / 1000					
ALCONON DISHER	Enchic	Dule Martin	Dute To		Operation	

×	03-03-2023 Fr/i	20.21.46	1	Object
				100000000000000000000000000000000000000

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Object: headshoulder

Property: There are two alarm types supported: Alarm for un-wear helmet and alarm for wear specific color helmet. Red, yellow, white, blue, orange and other are selectable for helmet color.

×	03-08-2023	0-1 11-05-31-5		Object	headshould	er ·	•	
				Property	whether	unwear	~	
	1 Alexandre			Quantity	helmetc	Less Th	 ✓ ✓ 	
				Threshold Duration (s)	1	Less That Larger TI Within the	n or Equal to han or Equal to e Range Between Min	. and Max. Value
α [*]	the			Alarm Interval(s) Sensitivity	1 50			min. and max. value
				Max. Alarm Times Algorithm Validity	000	1	0	
đ			Camera 01					
			239					

Quantity: Rules for determining the number of detected objects to generate alarms. There are 4 rules available: Less Than or Equal to, Larger Than or Equal to, Within the Range Between Min. and Max. Value, Not Within the Range Between Min. and Max. Value.

Duration: The time condition that for the target to trigger the alarm. Only when the target stays in the detection area for more than the set time, the alarm can be trigger. The maximum configurable time is 1800 seconds by default

Alarm Interval: Time interval of 2 alarms triggered by the same target.

Sensitivity: Identify the percentage of overlapping target head shoulder frames and detection frames. The higher the value, the easier the alarm is to trigger.

Max. Alarm Times: The maximum number of alarms for the same target detected by the algorithm. The maximum value is 100.

Algorithm Validity: The credibility of the target identified by the algorithm. If we set the value to 500, targets with a confidence levels below 500 will be filtered.

1) Un-wear Helmet Alar

Property: Tick whether to wear a helmet property, select the property to un-wear.

Note: For un-wear helmet alarm, do not tick helmet color property.

Quantity: No need to enable.Duration: 2s or above

Alarm Interval: Keep default value, or set based on actual requirements, the default value is 1s.

Sensitivity: Keep default value, or set based on actual requirements, the default value is 50.

Max. Alarm Times: 1 time.

Algorithm Validity: 500

Click the icon, use mouse to draw the area on the screen.



Click Save to finish the configuration.

2) Wear a specific color helmet alarm

Property: Tick whether to wear a helmet property, select the property to wear.

Tick helmet color property, select the color you need. There are six options available: red, yellow, white, blue, orange and other.

Quantity: No need to enable.

Duration: 2s or above

Alarm Interval: Keep default value, or set based on actual requirements, the default value is 1s. Sensitivity: Keep default value, or set based on actual requirements, the default value is 50. Max. Alarm Times: 1 time.

-03-08-2023	Wed 21 04:11	Object	headshould	er 🗸
AN		Property	Vhether	wear 🗸
			Phelmetc	white 🗸
		Quantity		Less Th \backsim
		Threshold	1	
		Duration (s)	1	
- 7		Alarm Interval(s)	1	
-		Sensitivity	50	
1		Max. Alarm Times		1
12		Contract of the second s		



3) Un-wear a specific color Helmet Alarm

Note: At present, the algorithm only supports two alarm modes, which are alarm for un-wear helmet

and alarm for wear specific color helmet. If you want to get alarm for Un-Wear a specific color helmet,

you need to add 6 rules to do this.

If you want to get alarm for un-wear Red helmet. Please operate according to below steps:

 i) Click Add Rule, add rule 1, set un-wear helmet rule. For more configuration details, please refer to Un-wear helmet alarm above.



 Click Add Rule, add rule 2-6, set wear yellow, white, blue, orange and other helmet rule. For more configuration details please refer to Wear a specific color helmet alarm above.

Died.	No:	Rule Name	Rule Type		Operatio	n()
E.	2	yellow	Region Target Exception Status Dete	ction 🗸	× m	
i,	3	white	Region Target Exception Status Dete	ction 🛩	× m	
0	4	blue	Region Target Exception Status Dete	ction 🛩	× m	
1	5	orange	Region Target Exception Status Dete	ction 🗸	× 18	
1:	6 0	ther	Region Target Exception Status Dete	ction 🖌	× m	
-	The second second					
12-0		A/ 12 34	Object	headshouk	der	~
	1 1 1		Property	S whether	wear	~
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- 10			Threshold	1		0
		4	Duration (s)	2		0
	1000		Alarm Interval(s)	1		0
- 81			Sensitvity	50		0
		THE STREET	Max. Alarm Times		1	0
			Algorithm Validity	500		0
5 - 1	Section and the section of the secti	A Local and				

3. Check Alarm Content at Hikcentral Professional

3.1 Add Device

Enter HCP 2.4, Basic Management->Device->Encoding Device. Click the Add, the add menu pops up on the right, then fill in the parameters such as IP address, user name, and password to complete the addition.

🥑 HikCentral Professional 🛛 🏠		Video Access Control Parking Lo	t Visito	r Intelligent Analysis	Attendance O	n-Board Monitoring	Event and Alarm Pe	rson Account and Security	Device 4	212
Device		A No NTP server configured. Configure								
Device and Server	^	Add Encoding Device								
Encoding Device		Adding Mode	IP Add	Progress			×			
Access Control Device			 Hik-G IP Seg 	Camera in Total: 1. Config	ured: 1. Exception: 0.		100%			
Elevator Control Device			O Port S	Name	Statu					
Video Intercom Device			Obatch	Camera 01	Succe	eded				
Visitor Terminal		*Device Address	10.9.96.2							
On-Board Device		Encrypted Add								
Query Terminal		*Device Port	8000							
Entrance/Exit Control Device		Mannad Port					Close			
Guidance Terminal		mapped for								
Display Screen		• Verify Stream Encryption Key								
UVSS		*Device Name	AIOP							
Security Control Device			(Justinia							
First Protection Device		-User Name	admin							
Dock Station		* Password	•••••			40				

After filling in, the device network status shows online, it means the addition is successful. You also can check the model and firmware version of the camera, as shown in the figure below

OHIK Central Professional	Ĥ		Vid	eo Access Control	Parking Lot Visitor	Intelligent Analysi	s Attendance	On-Board Mo	nitoring Event and Alar	m Person Account and	Security Device C		QØ	≡ admi
Device		≣	All	~ +Add	📋 Delete 🛛 🖉 Change I	Password 🛛 🧷 Edit B	andwidth for Video	Downloading	🕼 Time Zone – 🗘 Refres	sh All 🔞 N+1 Hot Spare		Search		Q
Device and Server		^		Device Name	Device Address	Device Type ‡	Serial No. 4	Version ‡	Available Cameras ‡	Alarm Inputs/Outputs	Network Status	Password Strength	Operation	
Encoding Device				AIOP	10.9.96.240	Network Camera	iDS- 2CD7146G0- IZS20221017A	V5.8.20 build 230214	1	2/2	Online	Weak	© 0	
				H7 7A46	10.9.96.3	Network Camera	iDS- 2CD7A46G0- IZHSY202006	V5.5.804 build 210831	1	2/2	Online	Weak	© 0	
Video Intercom Device				10.9.96.15	10.9.96.15	Network Video Recorder	DS-9664NI- 116162022042	V4.61.25 build 220905	39	77/45	Online	Weak	© 0	
				10.9.96.34	10.9.96.34	Network Camera	iDS- 2CD7A46G0/P- IZHS2022062	V5.8.10 build 230220	1	2/2	Online	Weak	© 0	
On-Board Device				999	10.9.99.115	Network Camera	iDS- 2CD7A46G0- IZHSY202203	V5.7.70 build 211021	1	2/2	8 Offline	Strong	0.0	
Entrance/Exit Control Devic			Tota	: 5 100 /Page 🗸									1 /1	Go

- 3.2 Alarm and Event Configuration
 - 1) AIOP Camera Alarm Event configuration is different from the others. In this interface, select Custom

Event->Device Application Event, then select AIOP Event, and finally select the added camera.

🤨 HikCentral Professional 👔 🔡	Video Access Control Parking Lot	Visitor Intelligent Analysis Attendance	On-Board Monitoring	Event and Alarm $ {\cal O} $	Person Account and Security	Device ··· 🔝	Q Ø ≡ admin≚
Event and Alarm 🗧	🔶 Add Event and Alarm						
Q Search ^	Basic Information Actions Re	ceiving Schedule Alarm Settings					
Overview	Basic Information						
Event and Alarm Search	Suste monitation						
Event and Alarm Configuration ^	*Triggered By	Triggering Event			Source		
Normal Event and Alarm		Triggering Event			Search	Q	
Combined Alarm		Patrol	✓ AIOP Event		> 🗌 🔢 10.9.96.15		
Basic Configuration V		> Vehicle > Alarm	> HEOP Event	_neimetcolor_neadshoulder	> _ # 2210		
Custom Event Y	$\overline{\}$	> Intelligent Analysis					
		Digital Signage			Camera of Control]	
		User			> 🔲 🔢 H7 7A46		
	È.	\sim Custom Event			> 🗌 📕 indoor		
		User-Defined Event					
		Generic Event					
		Device Application Event					
		Visitor					
	*Name	{\$Source} - {\$Area} - {\$Triggering Event}					

2) Configuring Linkage Action, Here commonly used linkage action: 1) Captured Picture; 2) Trigger

Recording, as shown in below.

Actions			
Actions		Add Linkage Action	
Receiving Schedule • Event Receiving Schedule	 To avoid missing alarms, make sure the event receiving schedule Schedule Template All-Day Template Event Based 	 Trigger Recording O Captured Picture O Create Tag Link Access Point Link Alarm Input Link Alarm Output Trigger PTZ Link Third-Party Integrated Resource Send Email Trigger User-Defined Event Link Speaker Unit Trigger Remaining Open for Entran 	
Actions			
Action	S	Add Linkage Action	
	Captured Picture		â ^
	Camera Source Camera Specified Camera Capture Picture Event Time Before, Upon, and After Event Detection		

3) Edit Receiving Schedule

LVEIIIa/Marina

Receiving Schedule								
	(i) To avoid missing alarms, make sure the event receiving sc	hedule covers the alarm receiving schedule.						
Event Receiving Schedule	Schedule Template							
	All-Day Template 🗸 🗸	View						
	◯ Event Based ^①							

4) Enable Trigger Alarm, that is, trigger an alarm after an event occurs and send it to the alarm center.

Alarm Settings		
Trigger Alarm		
*Alarm Priority	High ~]





6	HikCentral Professional	♠		Video A	Access Control	Parking Lot Vis	itor Intelligent Analysi	s Attendanc	e On-Board Monitor	ing Event and	Alarm 🗘 Person	Account a	and Security	Device	Ē Q	Ø ≡ admin ~
Ev	vent and Alarm		Ē	1 The server s	upports global sor	ting for log type data	а.									×
С	2 Search		^	Event and A	Alarm Search											⊟ Export
				Time			Marking Status 🔅	Name 🗘	Trigger Alarm ≑	Alarm Priority	Triggering Time 🕴	Area 🗄	Source 🕴	Triggering Event	Status 🗧	Alarm Category
	Event and Alarm Search			Today		~	Unmarked	Camer	Yes	High	2023-03-09 16:14:36	AIOP	Camera 01	whetherwearhel	Not Confi	
				Trigger Alarn	n		Unmarked	Camer	Yes	High	2023-03-09 16:14:31	AIOP	Camera 01	whetherwearhel	Not Confi	
Ę			^	All	Disabled	Enabled	Unmarked	Camer	Yes	High	2023-03-09 16:14:14	AIOP	Camera 01	whetherwearhel	Not Confi	
				Area			Unmarked	Camer	Yes	High	2023-03-09 16:14:11	AIOP	Camera 01	whetherwearhel	Not Confi	
				Triggered By												
23			~	Event/Alarm	Name											
Ē			^	Camera 01 - A	AIOP - whetherwea	arhelmet_helmex.										
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- 5) Finally, you can view the alarm information triggered by the AIOP camera on the Web Client, including the trigger time of the alarm.
- 6) If you have trigger recording/capture picture configured, you can view the captured images or videos in the Alarm center of the Control Client